

SMITHSONIAN Zoogoeer

AUTUMN 2017

American Seals and sea lions Acrobats

are among the Zoo's most
energetic inhabitants.

- » Training Zoo Animals
- » For Kids: On the Farm
- » Exciting Autumn Events

CYBER SAFARI

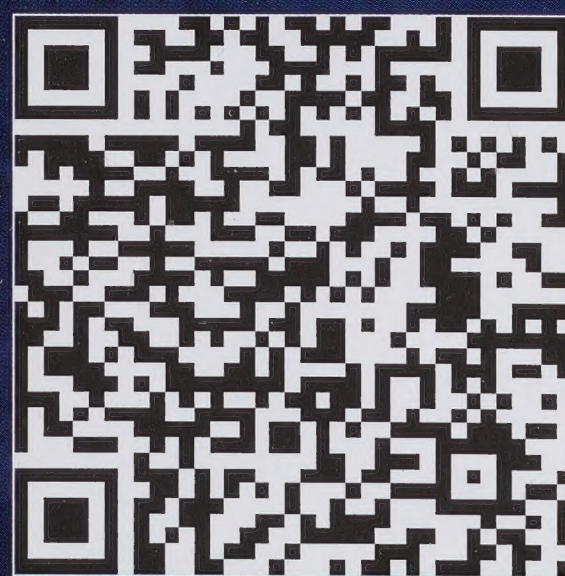


GET THE APP!

Search for Scavify (Android or iOS) in the App Store or Google Play and download the free app.

AND JOIN THE HUNT!

Create a Scavify account and search for FONZ Member Cyber Safari. Get the password by visiting any Zoo Info Booth or emailing fonzmember@si.edu.



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JESSIE COHEN/NZP

Making Waves

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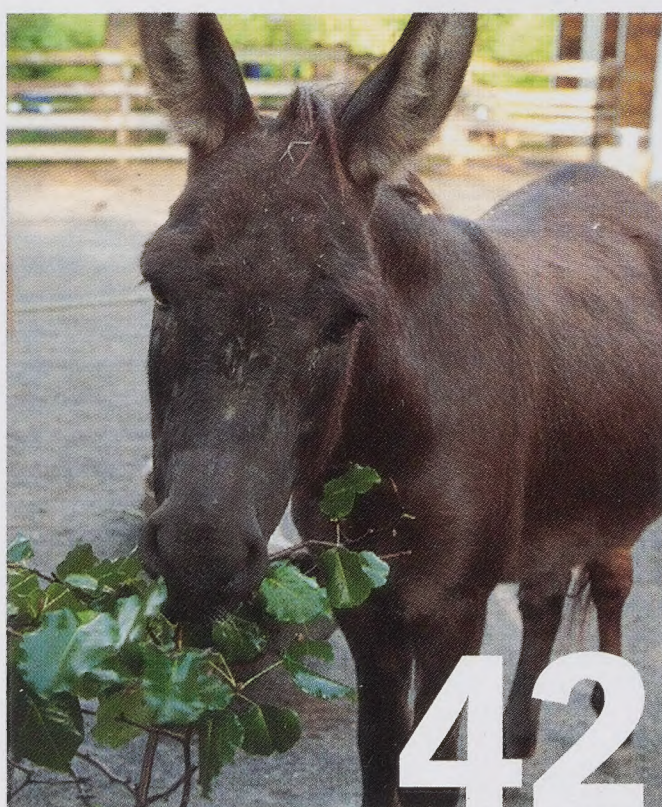
Get an overview of last year's accomplishments and highlights—all powered by the boundless support of FONZ members.



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Have you been tracking the giraffes?

Find out on the back cover how you can help us track giraffes.



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SMITHSONIAN Zoogoer



The Friends of the National Zoo helps the Smithsonian's National Zoo and Conservation Biology Institute save species by raising funds to support their mission, providing educational and fun experiences, and inspiring our members and guests.

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Smithsonian National Zoological Park is located at 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537. Weather permitting, the Zoo is open every day except December 25. For hours and other information on visiting the Zoo, go to nationalzoo.si.edu.

Membership in FONZ supports the animal care, conservation, and educational work of the Smithsonian's National Zoo. It also offers many benefits: a *Smithsonian Zoogoer* subscription, discounts on shopping and events, discounted or free parking, and invitations to special programs and activities. To join, call 202.633.2922, or visit fonz.org/join.

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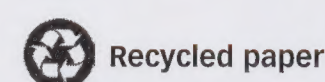
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On the cover: Keepers feed fish to the Zoo's seals and sea lions several times a day.

PHOTO BY JIM JENKINS, NZP



The Smithsonian's National Zoo is accredited by the Association of Zoos and Aquariums.



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GET CAFFEINATED, SAVE SPECIES

Do you like to help save species?

How about coffee? Me too! FONZ members know the conservation work that Smithsonian scientists do doesn't just happen at the Zoo and SCBI—it's truly worldwide. Now, there's a new way for FONZ members to help out: by drinking coffee. The Smithsonian Migratory Bird Center—which does amazing work in studying and saving bird species—has developed the only 100% organic and shade-grown coffee certification available: Bird Friendly.

Many coffee farms clear-cut all vegetation so they can improve crop yields, but that wipes out bird habitats. Bird Friendly farms grow their coffee plants under existing native trees, so they retain the habitats of native birds. (Bonus: Reviewers say this organic coffee tastes better, because the shade allows the beans to mature more slowly, so they develop more flavor.)

You can buy coffee beans that are certified through the program at grocers like Whole Foods, Fred Meyer, and other retail outlets. You can also get delicious cups of Bird Friendly coffee at the Zoo, and at a few Smithsonian museums. Now, you can get it at Nordstrom too. As of this summer, Smithsonian-certified Bird Friendly coffee is at more than 100 Nordstrom espresso bars. That includes several Nordstroms in our area, like the ones at Tysons Corner Center, Pentagon City, and Montgomery Mall.

We're currently building a new exhibit, Experience Migration, which will highlight the amazing work done by the Smithsonian Migratory Bird Center. In the meantime, you can go online and track the migratory patterns of birds that researchers have tagged. (The site is at migratoryconnectivityproject.org/livetacks.)

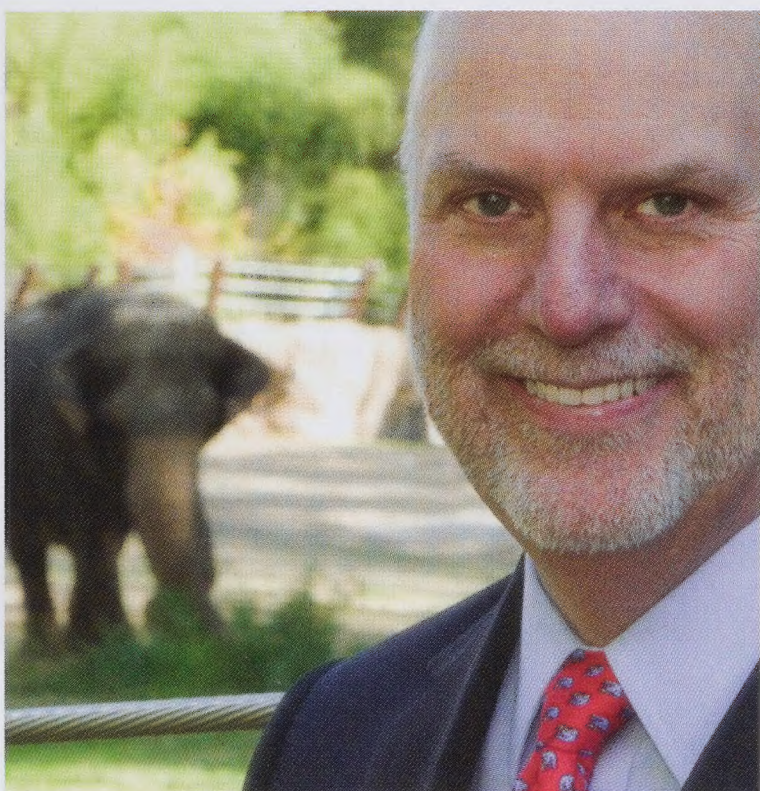
See you in the Zoo, maybe over a cup of coffee!



COURTNEY SMITH/FONZ

Lynn Mento, Executive Director
Friends of the National Zoo

SEEING REDD



Dennis Kelly, Director
Smithsonian National
Zoological Park

If you haven't yet seen Redd—the Zoo's juvenile orangutan—this fall is a great time to do so. Coming up on his first birthday, Redd's been attracting crowds and winning fans. Even more important, he's a living symbol of the Zoo's work to conserve species such as Bornean orangutans, which are critically endangered in the wild.

Other notable babies at the Zoo include Birdie, a gray seal, and Catalina, a juvenile sea lion (see page 16). In June, the Zoo welcomed its first ever Bourret's box turtle hatchlings—another giant leap toward saving a critically endangered animal. Out in Front Royal, we were thrilled by the births of a Przewalski's horse foal and a scimitar-horned oryx (see page 10). Both species were once extinct in the wild. And in July, our Great Cats team welcomed a Sumatran tiger cub. That's a huge event, given that fewer than 400 Sumatran tigers remain in the wild.

Breeding endangered animals is a key step toward saving species, but it's just one facet of protecting wildlife. To encourage the next generation of conservationists, we're proud to announce that Conservation Discovery Day will take place on Saturday, October 7, in Front Royal. This rare opportunity to visit the SCBI campus will include hands-on activities, research demonstrations, and mini-chats on hot topics in conservation, all conducted by our scientists.

Panel discussions will give attendees the chance to hear conservation biologists, field ecologists, research scientists, veterinarians, and animal keepers discuss career opportunities in conservation. After all, just as the world needs Redd, Birdie, Catalina, and the Zoo's other new additions, it also needs dedicated professionals—like those you can meet this fall—to create a better world for wildlife.

An Eventful Autumn at the Zoo

Zoo Uncorked SEPTEMBER 7

Support the Zoo's species-saving mission by tasting wine from noted vintners, both local and national. Dance to live music, encounter exotic animals, and check out The Art of Conservation—handcrafted works by an array of artists. fonz.org/uncorked



Enrichment Day | SEPTEMBER 16

FREE: Keeping animals active and engaged is a vital part of Zoo life. Learn more by watching and meeting keepers along with taking part in enrichment and training activities. fonz.org/enrichmentday



No Better Time to Visit

The section of Beach Drive near the Zoo has reopened after reconstruction, and Metro has completed its SafeTrack work. So getting to the Zoo has just gotten a lot easier. Between those transportation fixes, our trio of amazing pandas, a new tiger cub, and myriad opportunities to learn how keepers work with animals (see p. 29), there's no better time to come back to the Zoo!



Conservation Discovery Day | OCTOBER 7

Do you know a budding biologist or committed young conservationist? Then don't miss this amazing opportunity to meet and learn from Smithsonian Conservation Biology Institute scientists in Front Royal. Hands-on activities, mini-chats, research demonstrations, and panel discussions invite students from sixth grade through college to consider joining the next generation of wildlife advocates. fonz.org/cdd



GREG CROMER AERIAL PHOTOGRAPHY



JIM JENKINS, NZP

Boo at the Zoo OCTOBER 20-22

No tricks, many treats! This sure-to-sell-out event features spooky decorations, animal demonstrations, keeper chats, and enough treat stations for the most elephantine appetite. fonz.org/boo



ADAM MASON, NZP

MARK VAN BERGH, NZP

Night of the Living Zoo | OCTOBER 27

Stir live music, craft beer, food trucks, a costume contest, and performance artists into your calendar cauldron for a magically unmissable adults-only celebration. fonz.org/nolz



MARK VAN BERGH, NZP

ZooLights, Powered by Pepco | STARTS NOVEMBER 24

Half a million LED lights form a wonderland of glowing animals that dazzle and delight guests at our annual holiday festival. A whimsical train, tubing track, and musical performances add to the excitement. fonz.org/zoolights

Into the Woods

Returning endangered species to the wild is a holy grail for conservation biologists, and the quest is not without epic challenges. "Only by understanding the trials and tribulations of a frog's transition from human care to the wild will we have the information we need to someday develop and implement successful reintroduction programs," explains SCBI scientist Brian Gratwicke, a key figure in amphibian-conservation efforts.

As a major step toward gathering that information, Smithsonian scientists and their partners at the Panama Amphibian Rescue and Conservation Project released 90 captive-bred *Limosa harlequin* frogs into the Panamanian rainforest. Thirty of them spent their first month at the release site in enclosures, adjusting to their new surroundings. The rest were released directly into the wild.

Eight members of each group were outfitted with miniature radio transmitters that will help researchers chart differences in survival rates and assess the effectiveness of the two-stage release.

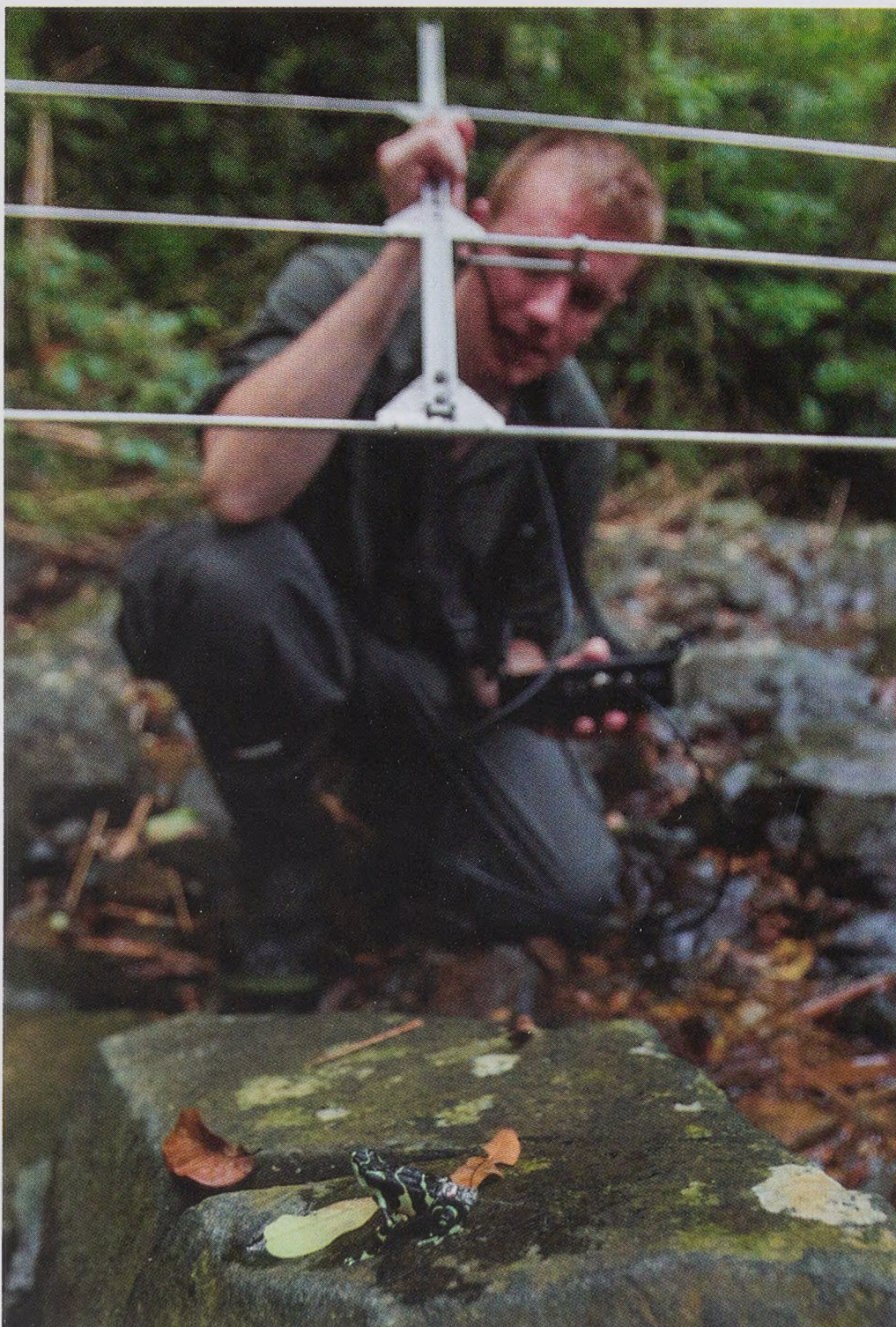
A FONZ Conservation Grant helped support this project.

Learn more:
fonz.org/frogrelease

Support this project:
ConservationNation.org/zoogoer



BRIAN GRATWICKE/NZP



ROSHAN PATEL, NZP



ROSHAN PATEL, NZP



A BIRD BABY BOOM

Spring and summer brought a quartet of exciting hatchlings at SCBI. Two loggerhead shrike chicks hatched. The birds—also known as butcher birds for the way they impale prey on thorns and barbed wire—were once common in North America, but populations have fallen by 70 percent.

SCBI is also home to its first-ever red siskin chick, offspring of a breeding pair that arrived in 2015. The red siskin is one of the most endangered bird species on the planet. SCBI researchers share what they're learning with colleagues in Venezuela, who are working toward conserving and breeding the birds.

Finally, a white-naped crane hatched at SCBI. With only about 5,000 white-naped cranes living in the wild, the species is listed as vulnerable. SCBI has a strong record of conservation with white-naped cranes: The latest chick is the 43rd born at the Front Royal campus.

Learn more: fonz.org/babybirds

ERICA ROYER, NZP



CHRIS CROWE, NZP



Tortoise Troubles

Everything seemed to be going so well. Four years ago, a desert tortoise habitat in California was threatened by expansion of a nearby military base. So conservationists moved 570 of the reptiles to an existing tortoise colony—a common conservation strategy. The move appeared to be a success.

Then SCBI geneticists conducted paternity tests on 92 recent hatchlings. The young tortoises had been fathered almost exclusively by males native to the habitat. "The fact that none of the hatchlings we tested were sired by a translocated male tortoise is both unexpected and alarming," said Kevin Mulder, an SCBI graduate student and lead author of the study, published in *Biological Conservation*.

What went wrong? Why did translocated males—but not females—fail to reproduce? Was the move too stressful for male tortoises? Did resident males outcompete the newcomers to win females? The researchers continue to explore these questions and will conduct new genetic tests as needed.

Learn more: fonz.org/tortoises

WALDE RESEARCH & ENVIRONMENTAL CONSULTING



A KEEPER'S DAY

Ever wonder what it's like to work at the Zoo? If so, you're not alone. So the Zoo's website has begun posting "Day in the Life" glimpses into the work of keepers in various exhibits. Here are a few highlights from a typical day for Emily Bricker, a primate keeper.

7:15 A.M. | A SPOONFUL OF YOGURT

"Our 30-year-old female red-fronted lemur, Flare, receives medication daily in her indoor enclosure. To make her medication more appetizing, I mix it in a small amount of yogurt and plate it on a miniature Frisbee. Her companion, Red Oak, doesn't take any medication at the moment, but we give him some yogurt, too, so that he doesn't feel left out."

9 A.M. | PREPARING FOR PLAYTIME

"I'm setting up forage feeders— heavy-duty plastic balls with holes drilled in them. I fill the balls with grapes, and the gibbons have to manipulate the toy to get the fruit hidden inside. When we let

the white-cheeked gibbons outside, they both head straight for the enrichment feeders. Sydney, our 17-year-old male, arrives at the forage ball first. While he collects grapes from above, Tuyen sits patiently below, collecting the stray ones that fall on the ground."

2 P.M. | LEMUR TRAINING

"To keep our lemurs entertained throughout the day, we give them a wide variety of enrichment to get them up and moving. I've been training our ring-tailed lemurs—Southside Johnny, Tom Petty, Bowie, and Birch—to hold carabiners and stand still for a short period of time. This helps facilitate a lot of training, especially when teaching them to sit still on a scale. If they hang on to the carabiners, they get raisins as a reward."

Learn more: fonz.org/primatkeeper





CHRISTOPHE COURTEAU/NATURE PICTURE LIBRARY

Fantastic Wildebeests and Where to Find Them

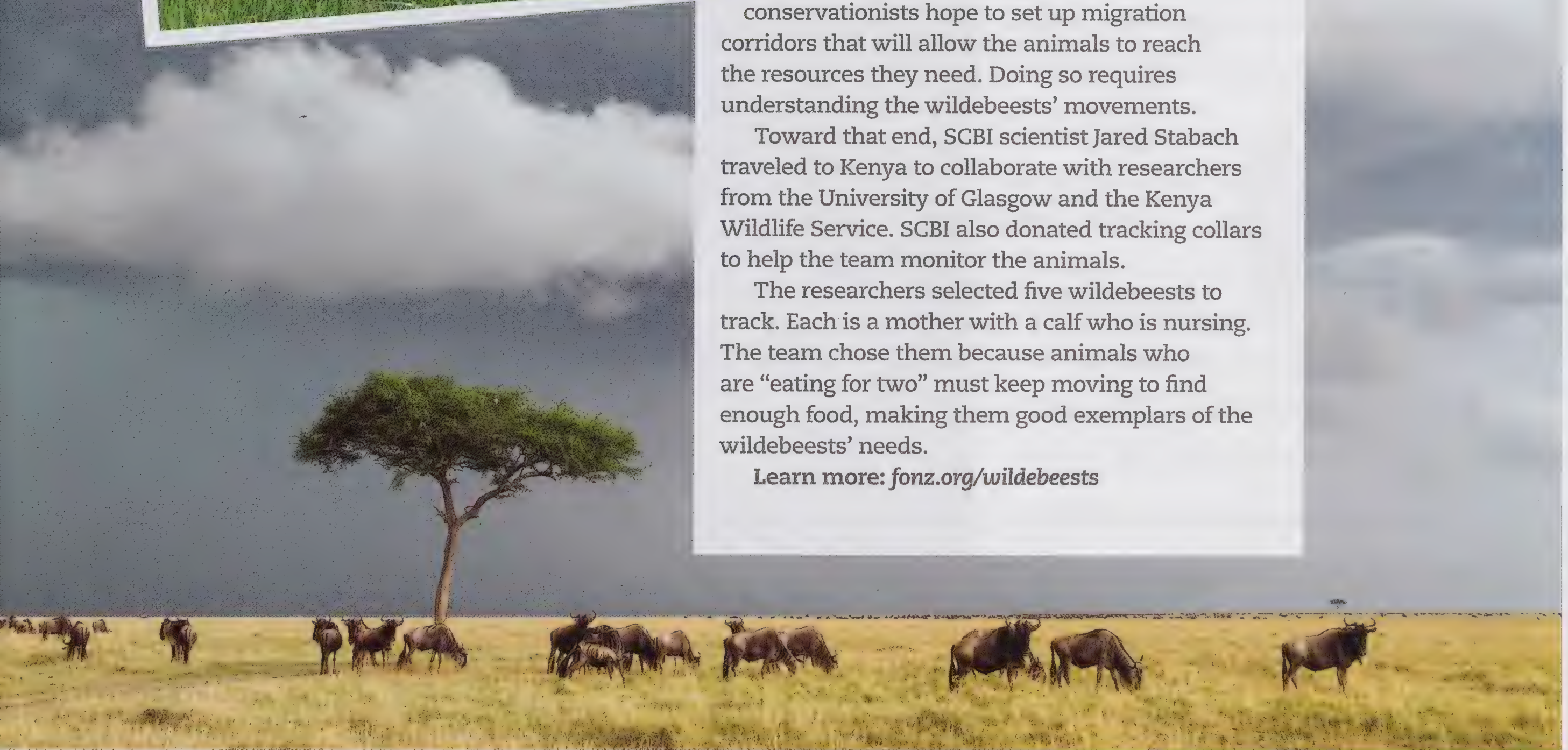
Human progress—roads, fences, dwellings, and more—has meant peril for white-bearded wildebeests on the savannas of East Africa. All that infrastructure prevents the animals from finding food and water. In some areas, populations have plunged by 85 to 95 percent.

To save the remaining wildebeests, conservationists hope to set up migration corridors that will allow the animals to reach the resources they need. Doing so requires understanding the wildebeests' movements.

Toward that end, SCBI scientist Jared Stabach traveled to Kenya to collaborate with researchers from the University of Glasgow and the Kenya Wildlife Service. SCBI also donated tracking collars to help the team monitor the animals.

The researchers selected five wildebeests to track. Each is a mother with a calf who is nursing. The team chose them because animals who are “eating for two” must keep moving to find enough food, making them good exemplars of the wildebeests' needs.

Learn more: fonz.org/wildebeests



DENIS-HUOT/NATURE PICTURE LIBRARY



COURTESY OF SHIVANGI AGRAWAL

Forbidden Fruit: A Giant Problem

For the forest elephants of Gabon, autumn brings mango mania. With excellent memories, the gray giants know just where to find trees full of luscious fruit. Problem is, many of those trees grow in human settlements whose inhabitants aren't eager for uninvited guests. It doesn't help that the elephants also snack on crops and even root through garbage.

To lessen people-pachyderm conflict, SCBI scientists Angelique Todd, Mireille Johnson, and Alfonso Alonso have been tracking elephant movements. The data they are amassing can help people in the area refine land-use plans and develop techniques for deterring forbidden foraging.

Learn more: fonz.org/gabon

Local Research, Global Impact

Early in May, SCBI welcomed the 40th Przewalski's horse foal in its history. The last truly wild horses, Przewalski's horses went extinct in the wild, but animals bred in human care now roam free in China and Mongolia. Satellite tracking collars help scientists monitor the herd.

A week later, a scimitar-horned oryx—another species once extinct in the wild—was born at SCBI. In 2016, SCBI was part of an international team that reintroduced scimitar-horned oryx into Chad. Tracking collars for the oryx were first tested in Front Royal. Three calves have already been born in the wild.

Learn more: fonz.org/scbibirths

Support this project:
ConservationNation.org/zoogoer



BUDHAN PUKAZHENTHI, NZP



COURTESY OF KARA DAVIS

You Never Know What You'll See at the Zoo!

Before a recent move, Cleveland Park resident Mary Davis recalls, she had "had towels and linens galore to donate. A lot of them ended up at the Zoo." They helped Animal Care staff look after the Zoo's residents in a variety of ways. Orangutans

and gorillas, for instance, use blankets, sheets, and towels to block sunlight, stay cool, hide, and even play.

Not long after the move, Davis's adult daughter, Kara, asked about a favorite duvet cover—blue with

polka dots—that she'd left behind in her parents' house. Don't worry, Davis assured her. It would turn up eventually.

Indeed, it did. About a month later, Kara, a teacher at D.C.'s School Without Walls, led a field trip to the Zoo. In the Great Ape House, she and her pupils spotted several linens in the gorilla enclosure. They included, yes, a blue duvet cover with polka dots.

Thanks to our generous volunteers and others, the Zoo presently has a good supply of linens and can't accept new donations.

A New Tiger Cub!

At 4:17 p.m. on July 11, the Smithsonian's National Zoo welcomed a Sumatran tiger cub. Its parents are Damai (an 8-year-old female) and Sparky (a 13-year-old male). The newborn weighed about 3.5 pounds. Within a fortnight, it had grown to 6.5 pounds.

The cub seems healthy and strong, and it appears to be male. His first veterinary exam, sometime in August, will provide an opportunity to more fully assess the cub's health, confirm its sex, and administer vaccinations.

"This is such an exciting time for us," says Craig Saffoe, curator of the Great Cats exhibit, "not only because we have a cub who appears to be doing great, but also because this animal's genes are extremely valuable to the North American population."

Reaching this milestone, Saffoe explains, took time and effort: "The keepers' patience with the introduction process, their willingness to study the cats' behaviors and learn from them, and our discussions with colleagues here and at other institutions have paid off. The result is this amazing little cub."

Learn more: fonz.org/tigercub



CRAIG SAFFOE/NZP

Our Growing Family

At the Smithsonian's National Zoo and Conservation Biology Institute, each animal birth or hatching is a new start, a light in a world where the future for wildlife can seem dark indeed.



CHRISTINA CASTIGLIONE/NZP

We were glad to welcome

138 new arrivals

at both Rock Creek and Front Royal in 2016.



JANICE SYEDA/FONZ PHOTO CLUB

NONMAMMALS

Lizards: 5

Frogs: 8

Fish: 15

Birds: 38

TOTAL: 66



CHRIS CROVE/NZP

MAMMALS

Primates: 5

Rodents: 3

Black-footed Ferrets: 42

Other Small Mammals: 9

Canids: 4

Marine Mammals: 1

Ungulates: 6

Red Pandas: 2

TOTAL: 72



JIM JENKINS/NZP



Good day.

Great day.



Smithsonian Campaign



MARK VAN BERGH/FONZ PHOTO CLUB



MARK VAN BERGH/FONZ PHOTO CLUB

Council members receive exclusive benefits such as behind-the-scenes tours and special opportunities to learn more about the critical work of saving species.

You Can Build a Better Future for Wildlife. Become a Council Member.

Want to help save species? Increase your support to the National Zoo and SCBI by becoming a Council member. Membership at these levels enables our science research to reach further and helps our Zoo's exhibits to shine even brighter.

HOW DOES YOUR COUNCIL MEMBERSHIP CONTRIBUTION HELP?

Council membership contributions help support unrestricted funds that give critical flexibility to address pressing needs at the Zoo and SCBI. These funds assist programs such as enhancements and renovations at the Zoo; science and special projects at SCBI; and urgent needs for animals in our care.

This past year alone, unrestricted funds were used for programs that educated and inspired 2.6 million visitors, excavated and installed a new den and pool for the Andean bear, supported the National Elephant Herpesvirus Laboratory program, and helped provide special chipped hay for our aging Asian elephant, Ambika.

DIRECTOR COUNCIL
\$2,500

EXPLORER COUNCIL
\$5,000

AMBASSADOR COUNCIL
\$10,000

Your support makes a difference.

Saving species here and around the world is hard work. As a Council member you'll know that you're a part of the world-class team at the Zoo and SCBI. We can't do it without your support.

To upgrade your support as a Council member, contact Katharine at kanek@si.edu. More information is available at fonz.org/givingsocieties.

Become a Council member today.

Rob Fleischer

Conservation Geneticist

Q: What do you do at the Zoo?

A: I am a senior scientist and head the Zoo's and SCBI's Center for Conservation Genomics. I use DNA analyses to study the evolutionary, population, and life histories of animals in zoos and in the wild, and I apply what I learn to help these animals survive the conservation challenges they face.

Q: How does your work help the Zoo save species?

A: Our science helps conserve threatened species in many ways. For example, we determine what makes up a species or other unit for conservation management. We use DNA obtained noninvasively (often from poop) to identify and count individuals in endangered species that are secretive and hard to study in the wild. The DNA can also reveal how animals are related and even what they eat. We diagnose invasive or novel diseases that are affecting wildlife and research ways to mitigate them. We measure population changes over time and assess inbreeding and the problems it can cause.

Q: How did you wind up working here?

A: I was a boy birder and naturalist, and wanted to study wildlife biology since junior high school. When I was an undergraduate student at UC Santa Barbara, I had a genetics professor who made molecular genetics exciting. When I told one of my other professors that I was torn between wildlife biology and genetics, he said, "Why don't you study wildlife genetics?" So I did that for my Ph.D.

Later, I began studying the genetics of Hawaii's native birds. Most of these were endangered, so I became interested in how I could use what I learned to help with their conservation. This prepared me for my dream job of conservation geneticist when the Zoo obtained funding for such a program around 1990.

Q: What's the most challenging part of your work?

A: Working with students and postdocs to troubleshoot their projects and interpret their results is a favorite part of my job, and it can sometimes be challenging.

Q: What's your favorite part of the job?

A: Discovering something nobody else knows about animals and then using it to better understand their biology and how to help them survive and thrive.



Q: What's the coolest or strangest thing you've learned working at the Zoo?

A: There are so many cool things I have learned, it would be tough to pare it down to one! Here are a few highlights.

Ancient DNA sequences from subfossil bones revealed that populations of nene, also known as Hawaiian geese, lost most of their genetic variation four or five hundred years ago, after Polynesians arrived in the islands, and not in the 19th and 20th centuries, as expected.

DNA paternity analyses showed that male desert tortoises in California do not reproduce after they are moved to a new home out of harm's way (while resident males and translocated females do).

And a gene expression study showed that most Arizona lowland leopard frogs that die from chytrid fungus infection have a particular gene that causes them to have a massive, and debilitating, immune response.

Q: If you could tell Smithsonian Zoogoer readers one thing, what would it be?

A: I would ask that they keep learning about how science helps us to conserve animals and how important it is to preserve biodiversity, and then work to ensure that national and world leaders also understand and value our natural heritage.



PHOTOS COURTESY OF ROBERT FLEISCHER

LARGE PHOTO: Rob Fleischer holds an amakihi, a type of honeycreeper, while in Hawaii.

SMALL PHOTOS: Staff and students conduct pioneering research at the Zoo's genetics lab.

Q What's your favorite Zoo animal? Why?

A I should say a bird, given that I am a card-carrying ornithologist, but actually it might be a toss-up between red pandas on Asia Trail and our ground hornbills at the Cheetah Conservation Station.

Red pandas have perhaps the cutest babies of any vertebrate, especially when they high-five their keepers. Despite some outward similarities, they are not closely related to the giant pandas, which are bears. Genetic data place them closer to procyonids, which include raccoons and coatis. Ground hornbills have strange bills, colorful wattles, and wonderful personalities.

Some animals just know how to make an entrance. Soon after Birdie, the Zoo's gray seal pup, was born in late January, keepers posted her first picture on Twitter. That launched a friendly battle among zoos all over the world, which tweeted their own cute animal pictures in response. The Twitter explosion made international headlines and was still streaming over the summer. (The feed is at [#cuteanimaltweetoff](#) if you have some free time and don't mind your heart melting.)

Birdie was more than just a cute face, however. As her keepers began to work with her this spring and summer, they also got some hints about her emerging personality.

"She is going to be a dominant, high-energy animal," says Chelsea Grubb, an animal keeper at American Trail, where the Zoo's seals and sea lions are on exhibit. "Some of the seals wait patiently to be fed. Others will not. She'll be one of those who will not be patient, who will want to participate in everything: enrichment, training, social activities, all the time."

Zoo visitors can probably vouch for that. Anyone within earshot of the exhibit this spring likely heard Birdie grunting—either pleading with her keepers to hand over more fish or just trying out her pipes. With time and training, that has eased a bit. Grubb has been teaching Birdie to vocalize following a cue, but not as a demand for more fish. She and the keepers reward Birdie for her



ABBY WOOD, NZP

The seals and sea lions at American Trail are some of the Zoo's most charismatic animals. (A pup turned social-media star doesn't hurt either.)

MAKI
BY LISA DUCHENE



NG *waves*

PREVIOUS PAGE: Keeper Chelsea Grubb with gray seals Kja and Gunther.

THIS PAGE: Selkie was the oldest gray seal in human care when she died in late 2016 at age 43.

JIM JENKINS, NZP

M A K I N G *waves*

on-cue vocalizations and ignore her yelling for more food.

"She's learning her manners," says Rebecca Sturniolo, assistant curator at American Trail. "She's very new in her training. We're taking our time with her. She's learning about us, and we're learning about her."

For example, Birdie is learning what "all done" really means. When meal time is over, she may yell and scoot in circles—but the keepers ignore that behavior so she learns that it won't get her more fish. "Last week she was yelling for two minutes," Sturniolo says, "and now it's down to a minute, then it will be 30 seconds. She's realizing that doing this is not helping."

Like all seal pups, Birdie is learning her place among the other seals, says

Sturniolo. Birdie—who was named by a donor's young daughter, also named Birdie—has been on exhibit since February, shortly after she began eating fish. All the seals and sea lions are free to come and go from the exhibit area through open doors and gates to their holding pools.

Nine times out of 10, Birdie hangs out on display in the public area. Time will tell, but the celebrity seal pup may be a bit of a diva.

Friendly Faces

The Zoo's seals and sea lions at American Trail are some of the most charismatic—and popular—animals in the park. They are a consistent hit at their recently

renovated exhibit, which includes huge, state-of-the-art pools: 300,000 gallons of saltwater in the sea lions' pool and 125,000 gallons in the seals' pool. (Wave machines keep the water in constant motion, mimicking the coastal waters of their wild habitat.)

These sleek swimmers with familiar, friendly faces and dark, glistening eyes fascinate us. What is it about seals and sea lions that make them so endearing and lovable? Perhaps it's their charismatic personalities, or their dog-like features, or their amazing underwater acrobatics.

California sea lions' ability to be trained—and the physiology that allows them to dive 1,000 feet deep and remain



JACQUELINE CONRAD, NZP

underwater for 20 minutes—has made them helpful to the U.S. Navy, which uses them to retrieve things from the ocean floor.

The Navy also used gray seals for such tasks until the 1970s. A gray seal named Selkie, Birdie's grandmother, came to the Zoo in 1979 from the Naval Ocean Systems Center in San Diego. By six months old, she had been trained to perform underwater tasks like inserting and removing equipment, turning a large wheel valve, and even using a screwdriver.

But Selkie sometimes had better things to do than follow orders. "In the Navy, if you're not willing to listen, they have no use for you," says Sturniolo. The

Navy ultimately determined that gray seals were not sufficiently reliable, and today it uses only California sea lions and bottle-nose dolphins.

Selkie birthed four female pups at the Zoo, including two—Kara and Kjya, pronounced "Kia," just like the car company—who both spent time at other aquariums and returned in 2012. In addition to Kara and Kjya, the Zoo's other gray seals are Gunther and Birdie.

Female gray seals typically live to about 35, but when Selkie died in late 2016, she was 43, making her the oldest gray seal living in human care.

The Zoo also has a harbor seal named Luke, along with five California sea lions: a male named Jetty, three adult

Sea lions and seals (along with walruses) are pinnipeds.

The term means "wing foot," for the flippers at the end of their limbs that help them swim.



Kara (left), a gray seal, has had three pups so far. The most recent was Birdie, born in January.

MAKING waves

Enrichment includes placing food in a device that animals have to work and figure out, or freezing fish in a block of ice.



COURTNEY SMITH, NZP

females—Sidney, Summer, and Calli—and a juvenile female, Catalina, born in June 2016. She was the first sea lion born at the Zoo in 32 years.

Flip Out

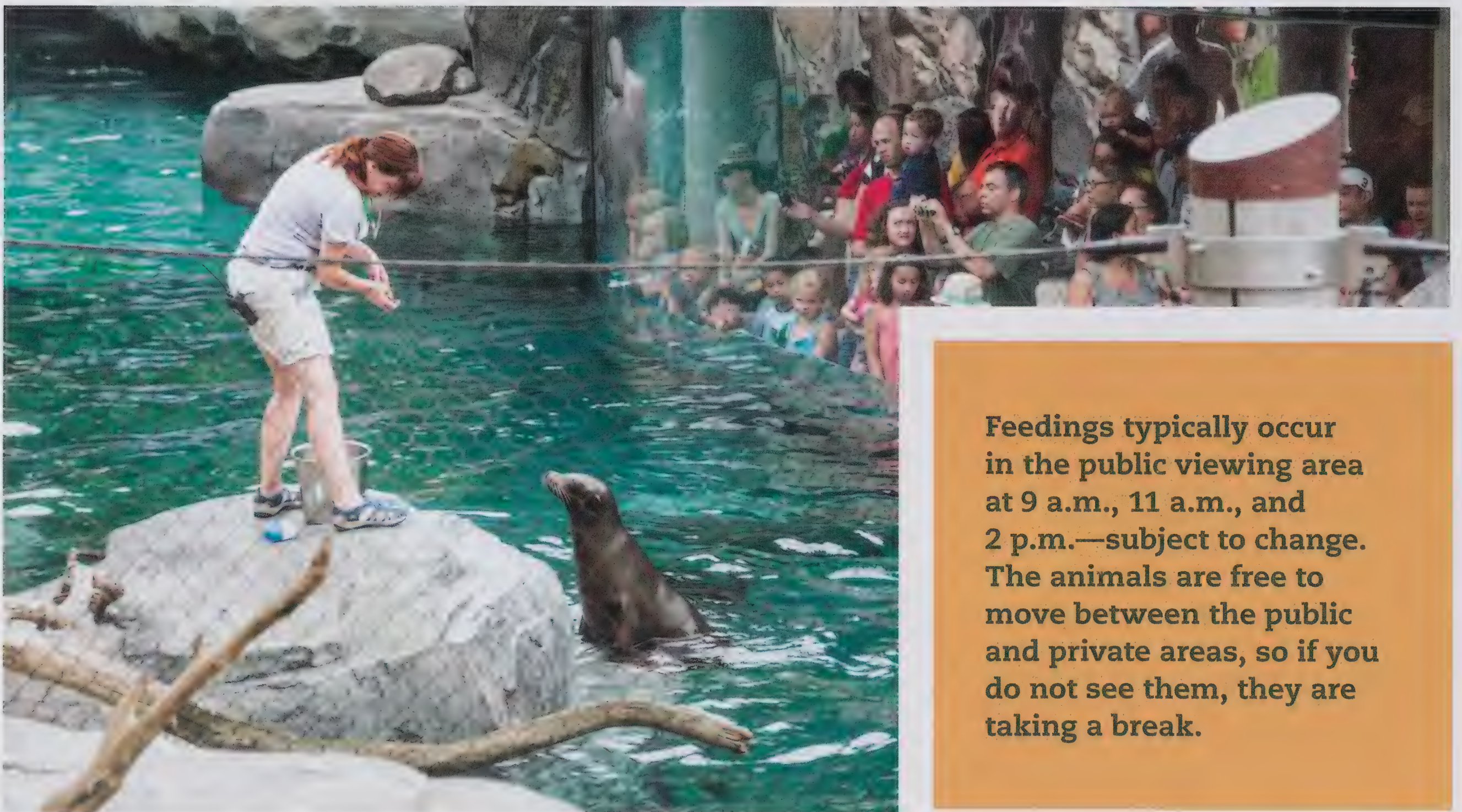
Sea lions and seals (along with walrus) are pinnipeds. The term means “wing foot,” for the flippers at the end of their limbs that help them swim. You can tell seals and sea lions apart by looking at their ears. Sea lions have a small earflap on each side of their

heads, while seals have a tiny opening and no flap.

You can also tell the difference by watching them move on land. Sea lions can rotate their hind flippers forward to help them scoot. By contrast, seals move more like caterpillars. Unable to rotate their hind flippers, they wriggle, hunch, roll, or slide to move around when not in the water. It may look clumsy and awkward, but they can actually move faster on land than a typical person can run.

California sea lions are sleek swimmers, sometimes reaching 25 mph. They are often seen sunning themselves on the rocky Pacific coastline of North America, where they gather in big colonies to breed and birth their pups. They are gregarious and pile up on one another.

Gray seals—found along the Atlantic coast of Canada and the northeastern U.S.—are much more independent. They interact with each other only during breeding and birthing. They will “haul out” onto land, and



JIM JENKINS, NZP

Feedings typically occur in the public viewing area at 9 a.m., 11 a.m., and 2 p.m.—subject to change. The animals are free to move between the public and private areas, so if you do not see them, they are taking a break.



CHRISTINA CASTIGLIONE, NZP



PREVIOUS PAGE: A sea lion shows off during a training session.

THIS PAGE: Keeper Diana Vogel works with Jetty, one of five California sea lions at the Zoo.

ABOVE INSETS: Chelsea Grubb works with Birdie (left) and Callie and pup Catalina (right).

M A K I N G *waves*

You can tell seals and sea lions apart by looking at their ears. Sea lions have a small earflap on each side of their heads, while seals have a tiny opening and no flap. You can also tell the difference by watching them move on land.

the adult females give birth, nurse their pups for about three weeks, then leave again.

Safety First

The seals and sea lions at American Trail do not entertain, do tricks, or perform in shows. (The animals that perform at other facilities tend to be sea lions.) “Everything we ask of these animals is completely voluntary,” says Sturniolo. “We ask them to do a behavior, and they get a reward.”

Training begins with safety behaviors, so that the keepers and animals can safely move around the exhibit and feeding goes smoothly.

Birdie’s initial training sessions include simple tasks like learning to “station” herself on a Frisbee—when she lays her head on the disc—or “target” when she places the tip of her nose on a buoy pole.

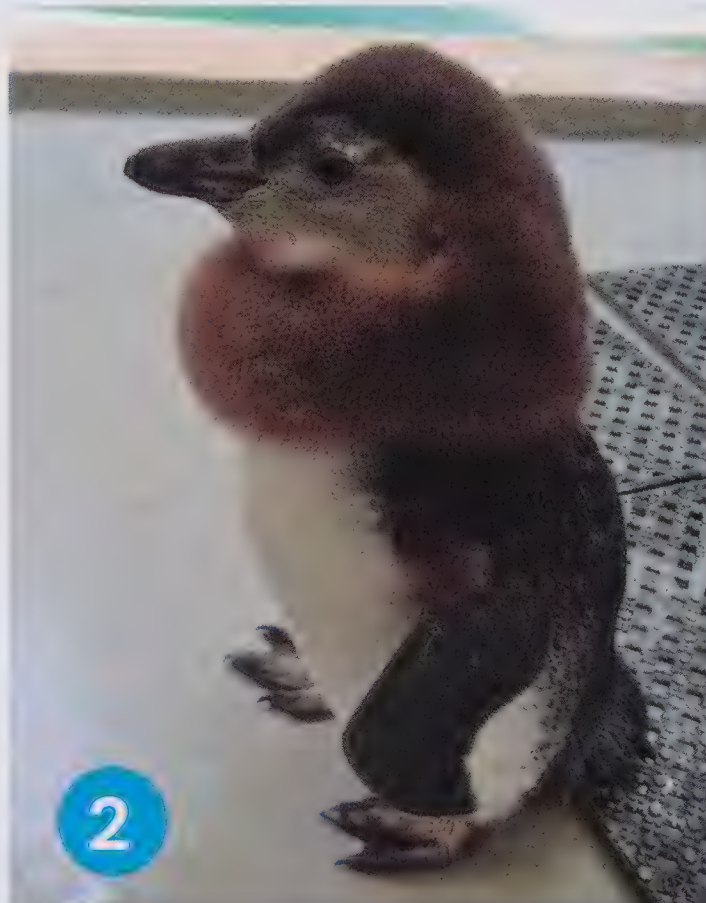
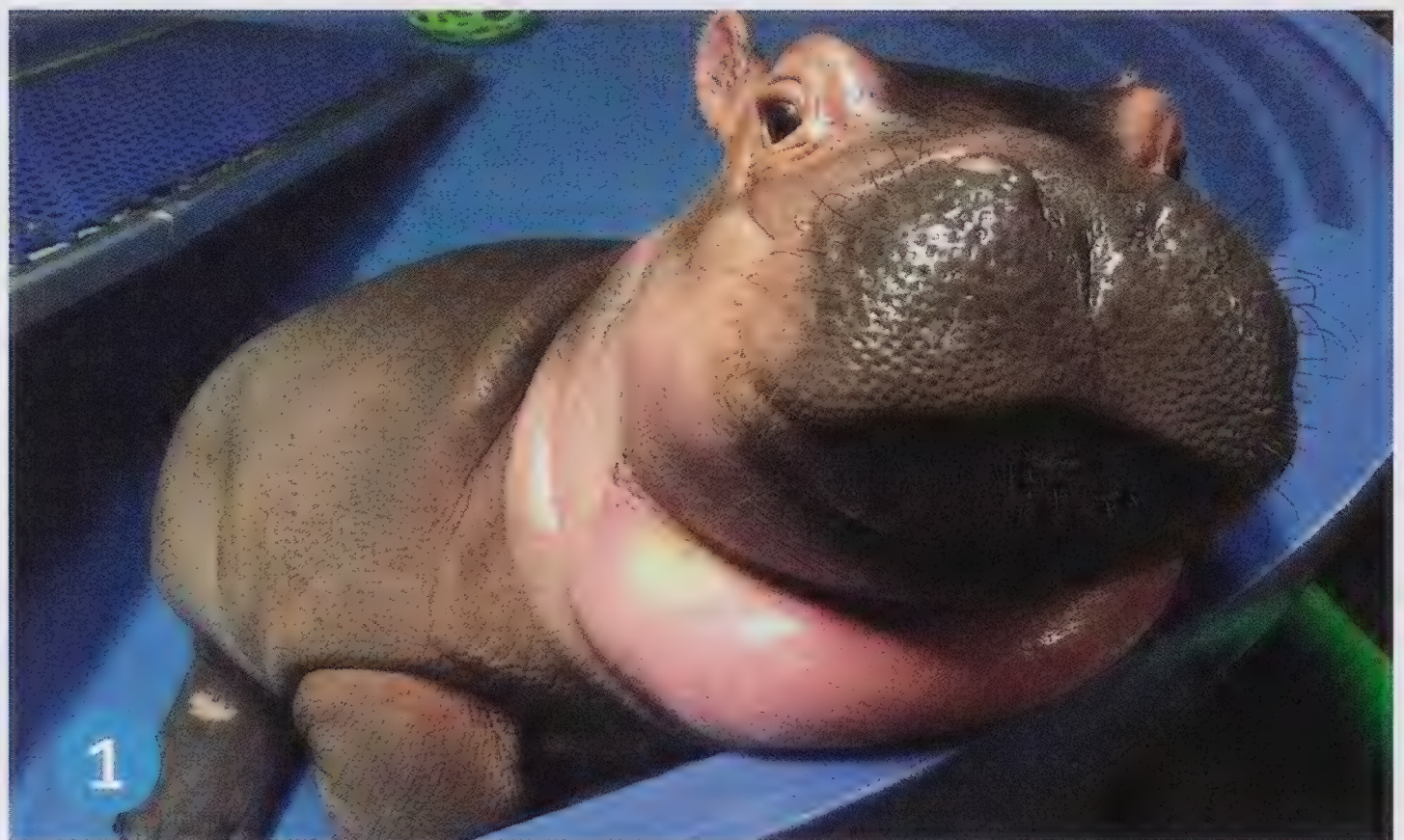
The animals also learn their names, and their first initials that mark their bucket of fish at feeding time, explains Sturniolo. That way, the animals know when it’s their turn to be fed. For the most part, they are patient and all wait their turns. Which works out well, because these are big animals.

At three days old, Birdie already weighed 37 pounds. She nursed from mother Kara for three weeks, and gained weight quickly on the fat-rich milk. At three months old, she weighed 99 pounds, was fully weaned and eating four kinds of fish a day. If she were in the wild, she would be hunting fish on her own by that point and protecting herself from predators. Female gray seals grow to about 6.5 feet long and weigh up to 575 pounds. Males can be 7.5 feet long and weigh more than 750 pounds.

Game On

When newborn Birdie’s baby picture—showing her soft, white, fuzzy head; sweet dark eyes; and then-golden fur—was posted to Twitter, a Virginia woman responded by challenging the Virginia Aquarium to post a few pics of their own. A cute-animal volley followed, then a “tweet-off” post that drew entries from zoos and aquariums around the world.

In the mix: (1) Cincinnati’s baby hippo, (2) Toronto Zoo’s baby penguins, (3) a tammar wallaby from the Perth Zoo, (4) a tiger cub from the Bali Zoo, (5) a baby orangutan from the Indianapolis Zoo, (6) a rescued seal named “Bogey” from the Marine Mammal Center, later released back into the wild, and (7) young pygmy marmoset twins from the Helsinki Zoo.



PHOTOS COURTESY OF CINCINNATI ZOO & BOTANICAL GARDEN, TORONTO ZOO, PERTH ZOO, BALI ZOO, INDIANAPOLIS ZOO, MARINE MAMMAL CENTER, HELSINKI ZOO.

“We feed them anywhere between two and six times a day, and we always try to offer some type of enrichment every day,” Sturniolo says. Enrichment includes placing their food in a device they have to work and figure out, or freezing fish in a block of ice. In the wild, they would be hunting, Sturniolo says. “Here, they don’t have to hunt, but they do have to work for their food.”

Pinniped Personalities

Each seal has an individual personality. For example, the gray seals on exhibit tend to ignore the keepers once they realize they have no fish and spend their time swimming or napping. Yet Kjya often tries to continue interacting with her keepers after a session. She dives to the bottom of the pool to retrieve a toy, follows the keepers, and pushes open unlocked gates between pools and tanks.

“None of the other seals do that,” says Sturniolo. “She keeps you engaged with her. She’s begging. She wants to keep eating.” Not always, though. Sometimes Kjya shows her unique personality by refusing fish during training.

Gunther, the male adult gray seal, was born in 1991 at the Los Angeles Zoo and came to the National Zoo in 2012. He generally likes to be wherever Kara is.

The Association of Zoos and Aquariums maintains a Species Survival Plan that includes breeding recommendations each year. The plan recommends the ideal matches of parent animals, based on genetics, among all zoos and institutions. So if the zoos have space, resources, and a future home for offspring, an adult pair will be brought together and allowed to breed.

Gunther has the green light to mate with either Kara or Kjya, but so far he has opted only for Kara. They have had three pups together. (One, a female named Rona, born in 2014 at the Zoo, was moved to the Louisville Zoological Gardens early this year and debuted on exhibit this spring.)

As for Kjya? “There’s not a lot of love in the air between those two animals,” says Sturniolo. “Gunther would always prefer Kara over Kjya. Sorry Kjya, he’s just not that into you.”

Steer Clear in the Wild

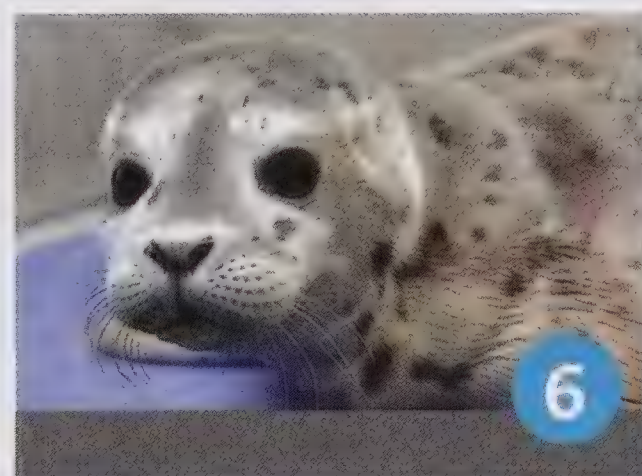
The cute, cuddly appearance of seals and sea lions has a downside: People may make the mistake of approaching these animals in the wild. Don’t! Instead, leave them be and admire from afar. Or visit American Trail, where the exhibit design offers close-up looks at these amazing animals.

In the United States, the Marine Mammal Protection Act of 1972 makes it illegal to harm marine mammals, which were hunted nearly to extinction for their pelts, meat, and oil. A similar law in Canada dates to the 1960s. Today, populations are stable, but the animals still face hazards from pollution. Eating or becoming entangled in plastic can cause injury or even death. Brain damage can result from swallowing domoic acid, a neurotoxin produced by algae blooms fed by fertilizer runoff from farms. Harmful chemicals such as DDT and PCBs can concentrate in the animals’ blubber, and research suggests that nursing pups may ingest them in their mothers’ milk.

The environmental stresses these animals face make it all the more important to have a healthy population in human care. In addition to potential future pups from Gunther and Kara (or, less likely, Kjya), the Zoo could perhaps take in gray seal pups from other zoos and institutions. After all, it has the facilities and staff to handle a larger group.

That means Birdie could have another playmate soon. **SZ**

—LISA DUCHENE is an independent writer-editor with more than two decades’ experience writing about marine issues.



Providing the best possible care for Zoo animals means getting an up-close look at their bodies and—at times—sticking them with needles. So how do you persuade a 400-pound lion or a silverback gorilla to tolerate such intrusions? With patience, persistence, and treats. Lots and lots of treats.

“Training gives us an opportunity to bring these animals close without negatively impacting their normal routines and with as little stress on them as possible,” says Craig Saffoe, curator of Great Cats.

Thanks to the staff’s dedication to continuous training, many animals at the Smithsonian’s National Zoo participate willingly in their own medical care, lessening the need for riskier handling procedures such as darting, anesthesia, and physical restraints. Some of the Zoo’s potentially most dangerous inhabitants, including big cats and great apes, routinely

allow keepers to inspect their body parts, from teeth to paws. A growing number are learning to line up at the edge of their enclosures so that veterinarians can draw blood or inject vaccines. Some apes allow ultrasounds of pregnant bellies and chest scans to monitor their hearts.

All training at the Zoo is entirely voluntary and based on positive reinforcement. Animals get rewarded for doing target behaviors correctly, but there are no punishments if they don’t, and they can walk away at any point.

Cub Kindergarten

When possible, keepers start with the youngsters, building trust by getting them used to the presence, sound, and smell of humans. With lions and tigers, this desensitization starts in the first few weeks of life, as soon as mom is willing to leave the cubs and go

Best Behavior

BY PHYLLIS MCINTOSH

COURTNEY SMITH, NZP





**Ever drawn blood
from a lion?
Ever given a gorilla
a chest scan?
The Zoo's keepers
have, and they
even persuade
the animals to
cooperate—thanks
to years of patient
training and a lot
of treats.**

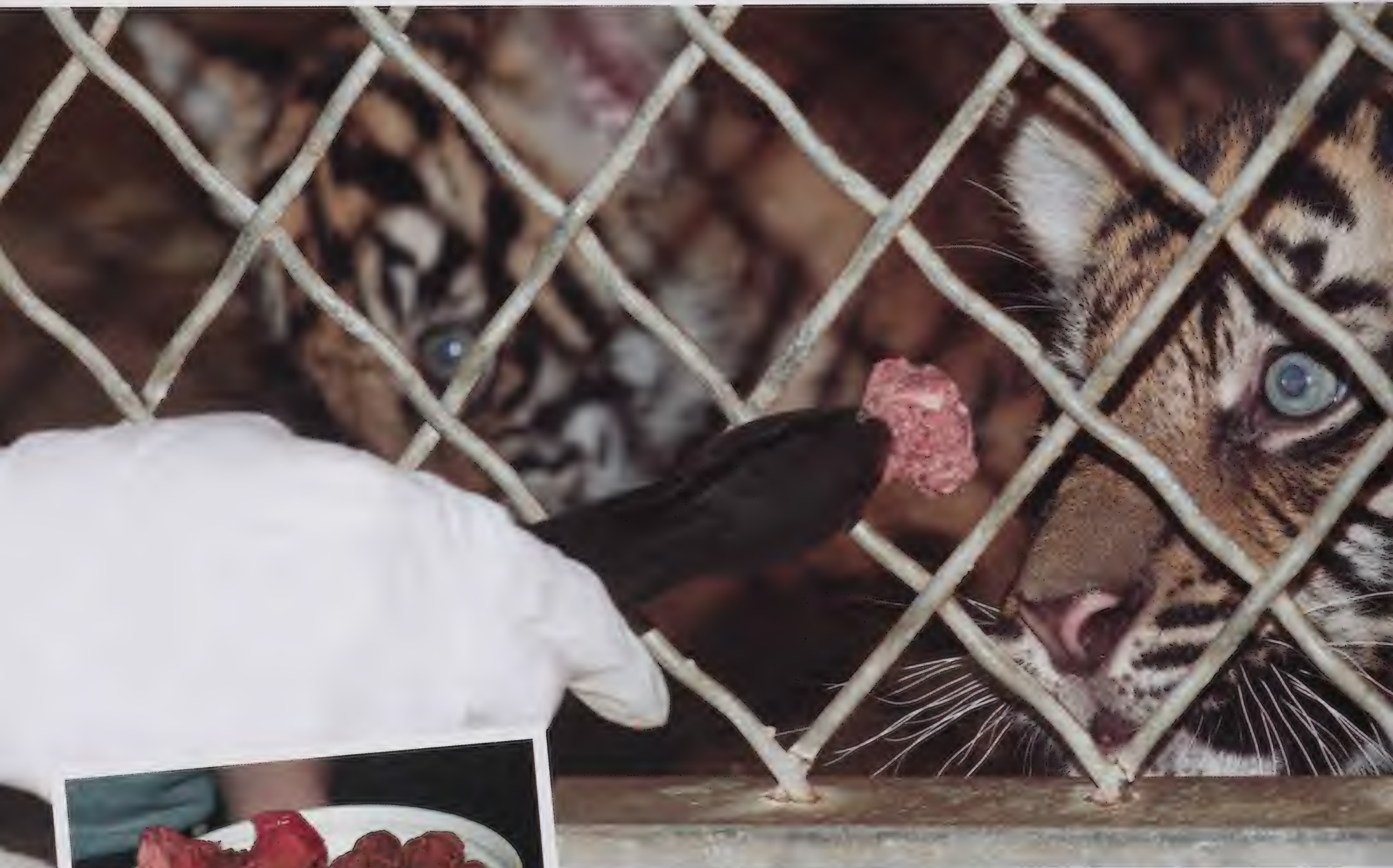
Emily Bricker works with Baraka, a male western lowland gorilla.

Best Behavior

outside briefly. “We go in and just hang out, maybe roll some balls around, so they learn that when we’re there it isn’t always for an injection from the vet staff,” says Rebecca Stites, who has worked with all 13 lion cubs born at the Zoo since 2010.

“We let their behavior gauge our level of interaction,” adds tiger keeper Dell Guglielmo. “If a cub appears afraid, we

charge the fences, and generally try to chase people away. In the past, zoos tended to isolate them to reduce their stress. But as more births have occurred in human care, keepers realized they could teach the tiger at an early age to tolerate humans. “We’re not trying to remove the hard-wired instinct from the cats,” says Saffoe. “We’re trying to override their instinct to



ABBY WOOD/NZP

ABOVE: Lions like meatballs as a reward, but tigers prefer solid chunks of beef.

FAR RIGHT: Animal keepers Leigh Pitsko (front) and Marie Magnuson work on injection training with a male Sumatran tiger.

slow down, take smaller steps, and let the cub get used to us on its own terms. But if one gets curious and comes up to us, we may touch its feet or tail.”

The process takes a bit longer with tigers, which are naturally more elusive and guarded. (As highly social animals, lions have the security of numbers and can afford to be more laid back.) Tigers, solitary by nature, are always on edge and alert to any threats in their environment. In zoos they are more likely to hiss, spit,

always want to kill us, and that creates a cat that’s calmer when we’re around.”

With any species, training can begin in earnest only after an animal is motivated by food as reward. Keepers watch for youngsters to start sampling mom’s food, which among lions and tigers may happen anywhere from three to six months. Trainers start by placing a target stick with a small ball on the end next to the animals’ enclosure. When curious cubs touch their noses to the ball, they hear a whistle and

get a meatball. They soon begin to associate certain behaviors with food.

“Targeting is very important for moving their bodies in different directions, so we use it throughout their lives,” says lion keeper Stites. “We use it to position them for hand injections and to move them around so we can see their bellies and sides of their bodies. As they follow the stick



ABBY WOOD/NZP

like there's a little magnet on their nose, they're constantly rewarded.”

Hand signals, reinforced with verbal commands, come next. Cubs learn to follow the keeper's hand to lie down, sit, and open their mouths, behaviors rewarded with a tasty meatball at each stage.

Training tiger cubs is much the same, with one difference, says Guglielmo. Meatballs might be fine for lions, but tigers prefer their reward in the form of a solid chunk of beef, thank you very much!

Ape Academy

Childhood lasts longer for great apes. For at least the first year of life, mom is the primary teacher. At seven months of age, infant orangutan Redd was still getting used to keepers' presence and voices, learning the routine of shifting within the enclosures, and familiarizing himself with his environment, says primate keeper Alexandra Reddy. “We gently touch his hands or feet to get him used to touching. Whenever Batang [his mother] decides we're

the animals' enclosures. “They each have their own color station, and since primates see in color, they know which Frisbee is theirs,” explains keeper Melba Brown. “We hang it up, call them over, and give them a grape or piece of banana, so it's a quick association.”

Keepers point to direct the apes to perform a certain behavior, but the highly intelligent animals also quickly learn to understand words. “They're so smart that they'll often anticipate what

Some of the Zoo's potentially most dangerous inhabitants, including big cats and great apes, routinely allow keepers to inspect their body parts, from teeth to paws.



MEHGAN MURPHY/NZP

done, she'll just pick him up and walk away. She's the boss, and she's doing a great job.” Formal training will start this fall—around the time Redd turns one—and, as with cats, will continue throughout adulthood.

In a variation on the target stick, keepers clip different color Frisbees to

we want and give us the behavior even before we request it,” Brown says. Bonding between keeper and ape is critical, she adds. “If you have a good relationship with the animal, you don't necessarily need to have a food reward all the time. If you show up, they're happy to see you and more often than not will come right over.” A keeper must also be able to sense

Best Behavior



MEGHAN MURPHY/NZP



MEGHAN MURPHY/NZP



MEGHAN MURPHY/NZP

TOP: Veterinarian Suzan Murray and animal keeper Becky Malinsky train Kwame, a gorilla, to put his arm in a tube for blood draws.

BOTTOM PHOTOS: Animal keeper Nicole MacCorckle collected milk from Mandara after she gave birth several years ago.

drama or tension within the apes' social groups and know to delay training until everyone relaxes.

"This Won't Hurt a Bit"

Zoo staff are especially proud of their success in training animals to cooperate in their own medical care. Great Cats curator Saffoe, who learned early in his career that standard procedure was to restrain big cats for needle injections, admits he was skeptical when younger keepers said they wanted to train lions for voluntary injections and blood draws. He gave them the go-ahead, with the proviso that if they weren't ready by the time the cats needed vaccines, they would have to resort to darting or physical restraint.

"Traditionally, we would put them in a squeeze cage," says keeper Stites. A squeeze cage has sides that can be adjusted to prevent an animal from moving around inside. "But as a trainer I felt that was so much more difficult and stressful. The cats never really got used to it. I felt if we could train them to accept something on their own terms, we wouldn't even have to move them."

Using the target stick, Stites first trained the lions to lie down and align their bodies along the edge of the enclosure. Once they were used to moving into position, she gently poked their rear end with a pole to accustom them to being touched. In cooperation with the veterinary staff, she then developed a protocol that allowed an animal two dry needle sticks per training session twice a week. Next, they received saline injections. By the time they needed their vaccines, almost all the lions accepted voluntary injections.

For blood draws, the focus is on the tail, safely away from teeth and claws. Keepers created gaps at the bottom of the enclosures that allow the tail to come out. After desensitizing the lions to being touched on the tail, Stites began using a snake hook to pull the tail outside of the enclosure far enough that a veterinarian can insert a needle into a vein

at the base of the tail. About half the lions reliably allow the procedure, including 11-year-old Luke, a reluctant but recent convert. Similar training is underway with tigers, though it's still a work in progress, says trainer Guglielmo.

Over at Great Apes, the gorillas and orangutans are trained to present arms or shoulders for vaccine injection, though like people, some are not fond of needles. The apes also have learned to insert an arm into a rigid plastic sleeve to allow blood draws, both as part of their regular health exams and for research on how blood proteins might help vets diagnose respiratory illness or other infections an animal may be hiding.

All of the apes are at various stages of training for cardiac ultrasounds to screen for signs of heart disease. While all will hold their chests against the mesh, some are not yet comfortable with the gel that must be applied to their chests for the scans. A veterinary cardiologist regularly visits to evaluate their hearts, because heart disease is prevalent in great apes, especially among male gorillas.

Nursing orangutan mom Batang has been trained to allow keepers to collect milk samples that are then analyzed by the nutrition lab as part of an ongoing study of the hormone and nutrient content of animals' milk. Gorilla Mandara also contributed milk samples after the birth of her daughter Kibibi in 2009.

During her recent pregnancy, Batang learned to present her belly at the edge of the enclosure for twice-weekly ultrasounds. As a first-time mother, she was also schooled in infant care, even before she conceived. Using a bean-shaped pillow or stuffed animal, keepers taught her to hold a baby upright, carry it around her enclosure, and place it in a specially designed baby box where keepers could safely retrieve it if necessary. She also learned to use a breast pump in case she was not able to nurse successfully. As a further safeguard, two other female orangutans, Bonnie and Iris, were trained to act as surrogate mothers and bring the baby to keepers for regular bottle feedings. As it turned out, Batang has proved a caring and attentive mother for baby Redd.

Challenges and Rewards

As seen with the medical procedures, adults as well as youngsters are capable of learning new behaviors. In some ways, the adults are easier, say keepers, because they are more focused and less rambunctious than the young 'uns.

The biggest challenge for trainers is adapting to individual personalities and idiosyncrasies. Sometimes techniques that are successful with most simply don't work with one particular animal, says Stites. "There was one cat that was on a time crunch for an exam, and I didn't want the vets to have to dart him, so I tried training him using the same techniques but in different enclosures. It turned out that he trained really great in one specific space."

Primate keeper Melba Brown was frustrated by one female gorilla, relatively new to the National Zoo, that was not much interested in interacting with staff. While Brown was training other gorillas, that female willingly came over and performed the complete set of behaviors without being asked. "It was a revelation!" says Brown.

The gorilla had been watching what the others did, and she realized the behavior was reinforced with food rewards. It was a clear example of social learning rather than official training. "The point is you have to work with what is in front of you and always have the flexibility to accommodate individual differences."

Keepers agree that the rewards of training far outweigh the challenges. For Brown, the most satisfying thing is that the apes really enjoy the interaction. "Our gorillas especially are very vocal, and they'll often do a pleasure rumble during training or when you walk up to start a session. And you can tell they feel pride when they get something correct."

"The first time we did a hand injection, it was the best feeling," Stites says. "Not just for me, but because it was such a win for them." She also cherishes the bond that training creates. "I learn to read them, and they learn to read me. It's something really special between me and each of the animals." **SZ**

—Longtime contributor PHYLLIS MCINTOSH is a veteran Zoo volunteer.

VISIT. WATCH. LEARN.

Come see the Zoo's keepers in action as they train animals to perform key behaviors.

ELEPHANTS

Elephant Outpost | Daily, 11 a.m.

SEALS AND SEA LIONS

American Trail | Daily, 11 a.m.

MANY MORE ANIMALS

You can watch animals play and learn in plenty of other Zoo exhibits too. Find out what's happening the day of your next visit.

fonz.org/daily

ENRICHMENT DAY

September 16 | 10 a.m.-2 p.m.
Come see how the Animal Care team keeps the Zoo's residents healthy, happy, and engaged.

fonz.org/enrichmentday

YOU CAN HELP!

Fill the Zoo's toy chest for animals by contributing to the enrichment program (fonz.org/toys) or purchasing items from our Amazon wish list (fonz.org/wishlist).



MEGHAN MURPHY/NZP



SATURDAY, OCTOBER 7

SMITHSONIAN CONSERVATION BIOLOGY INSTITUTE, FRONT ROYAL, VA

Are you a budding biologist, curious conservationist or animal lover who's passionate about science and saving the planet? Designed for sixth-graders to under-grads, this sci-tacular day at the Smithsonian Conservation Biology Institute (SCBI) includes hands-on activities, research demonstrations and mini-chats on hot topics in conservation. Career panel discussions with conservation biologists, field ecologists, research scientists, veterinarians and animal keepers will open doors and minds to the professional possibilities within the conservation field. Follow your passion to the Blue Ridge Mountains for inspiration and insight on how you can join the conservation ranks and make a difference for wildlife and habitats worldwide.

Car passes required for admission. Passes are \$30 in advance, \$40 at the gate. Maximum of six people per standard vehicle pass. See website for more details or to get your car pass at **FONZ.ORG/CDD**.



Friends of the National Zoo

2016

In Review

STAN BYSSHE/NZP

Passion and pride underlay FONZ's many projects and achievements in 2016.

A shared passion for wildlife inspired staff and volunteers to pursue excellence as we served visitors to the Zoo, created our signature events, educated both children and adults, launched new initiatives, and much more. We take great pride in having significantly contributed to the Zoo's mission of saving species.

2016 FINANCIAL SUMMARY

FONZ had a strong year, with total revenues of over \$16 million.



\$2.4 MILLION IN MEMBERSHIP DUES

You are the foundation of FONZ's work, especially our support of the Zoo and SCBI. Thank you!

96,888 FAMILY MEMBERS

Membership grew by over 2,000 households in 2016, reaching 32,296 households.

SHOPS: \$1.9 MILLION TO THE ZOO

FONZ merchandise sales brought in \$5.8 million in revenue, allowing us to contribute \$1.9 million to the Zoo.



FOOD: \$2 MILLION TO THE ZOO

The Mane Grill, Panda Grill, Seal Rock Café, and other food concessions earned \$7.4 million in revenue, providing the Zoo with over \$2.2 million in commissions.



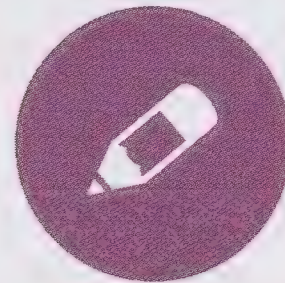
\$15,281 IN CAMP SCHOLARSHIPS

Your generosity enabled our popular camps at the Zoo and SCBI to welcome D.C.-area children who couldn't have attended otherwise.



ONE COOL NEW PROGRAM

Conservation Nation, an exciting new FONZ program, offers opportunities to contribute directly to wildlife conservation in the field. By giving or creating their own fundraisers, donors have a direct impact on erasing extinction.



\$100,000 IN CONSERVATION GRANTS

The Round Up for Conservation program in our stores and restaurants uses your extra change to create change. With your rounded up change we were able to give \$100,000 in conservation grants to Zoo and SCBI team members.



52,105 STUFFED PANDAS SOLD

Visitors often wish they could take one of our giant pandas home, so FONZ shops offer a chance to do the next-best thing.



\$349,569 IN DONATIONS

FONZ's Adopt a Species Program, website donations, and other gifts raised \$349,569.

3,000 HOURS OF MARKETING AND CREATIVE SUPPORT

FONZ's staff lent its expertise to the creation of artwork and materials for the Zoo's Gala, donor brochure, annual appeal, and much more.



190 MILLION AD IMPRESSIONS

Print and broadcast advertisements purchased by FONZ or contributed by our media partners reached millions, communicating the Zoo's conservation mission and inviting people to support it.



FONZ

Friends of the National Zoo • fonz.org



17 SCULPTURES

Friends of the National Zoo hosted a temporary art exhibition, Washed Ashore: Art to Save the Sea. Seventeen sculptures, made entirely of marine debris, generated awareness about the effects of plastic pollution. Eighty Washed Ashore volunteers contributed 2,730 hours over the 14 weeks and interacted with over 80,000 visitors.



\$2.2 MILLION FROM SPONSORS

Corporate sponsors donated \$760,000 in cash and \$1.5 million in kind (Boo at the Zoo treats, ZooFari delights, and more).



293,680 EVENT ATTENDEES

From Boo at the Zoo to ZooLights, guests had a roaring good time while supporting conservation.

2.5 MILLION VISITORS

Each day in 2016, FONZ staff enriched guests' time in the park by answering questions, providing shuttle rides, renting strollers, selling visitor guides, and much more.



1.1 MILLION CONVERSATIONS

Our incredible volunteers shared the Zoo's education and conservation messages with 1,106,850 visitors. They also helped with animal care and behavioral research. All together, volunteers provided the Zoo with services worth \$3.89 million.



60,361 RIDERS

Kids and kid wannabes climbed aboard the Speedwell Foundation Conservation Carousel, the National Zoo Choo Choo, and ZooTubes to delight in wild or mild rides.



9,770 FAMILY CONNECTIONS

Our paid education programs reached almost 10,000 children and parents.



189,330 ORDERS OF CHICKEN TENDERS

Even eating is a way to support wildlife at the Zoo! We've expanded menus to range from classic park fare—burgers, franks, tenders—to signature sandwiches, salads, and fresh fruit.



Helping to save species—at the Zoo, at the Smithsonian Conservation Biology Institute, and around the world—lay at the heart of the varied projects and programs undertaken by **Friends of the National Zoo in 2016**. The numbers highlighted on these pages are just snapshots of our accomplishments. None of these would have been possible without the stalwart support of FONZ members. Thank you.

Passion and Pride

Dear Friends,

Living in and around Washington, we all have an up-front look at the energy and passion behind a range of national causes and debates. Serving as chair of FONZ's Board of Directors has been a wonderful way to pursue my own interests in animals and the urgent challenge of conserving them.

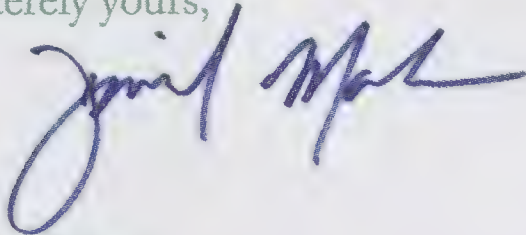
It's also been an incredible opportunity to see up close the dedication, determination, and creativity that FONZ members and staff bring to our mission of helping the Zoo and SCBI save species. The infographics on pages 32-33 offer examples of FONZ in action. I'd like to highlight a pair of especially impactful achievements from 2016.

FONZ orchestrated and found funding for Washed Ashore: Art to Save the Sea, a remarkable exhibition of 17 sculptures of marine animals—all crafted from ocean debris. It was a powerful, stunning way to educate thousands of Zoo visitors about a huge threat to marine wildlife.

2016 also witnessed the launch of Conservation Nation—an online avenue for members and other animal lovers to fundraise for hands-on, in-the-field conservation projects being done by Zoo and SCBI scientists, such as tracking elephants in Myanmar and using camera-traps to study Andean bears. So far, this new endeavor has raised more than \$30,000 to support Smithsonian science.

I hope reflecting on all that FONZ accomplished last year makes you proud and gives you a sense of optimism about what we can accomplish together. Your passion and your pride are key elements in our success. Thank you for being a Friend of the National Zoo.

Sincerely yours,



David Mork
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BEAST BITS

MOO-VING PICTURES

Cows have eyes on the sides of their heads, giving them something called “panoramic vision.” (The word panorama means “wide picture.”) For cows, that means they can see everything in front and to the sides—and most of the way behind them—without moving their heads! People are different. We can only see things in front and a little bit to the sides. Also, cows don’t see the colors red or green. Instead, a cow sees those colors as shades of gray.



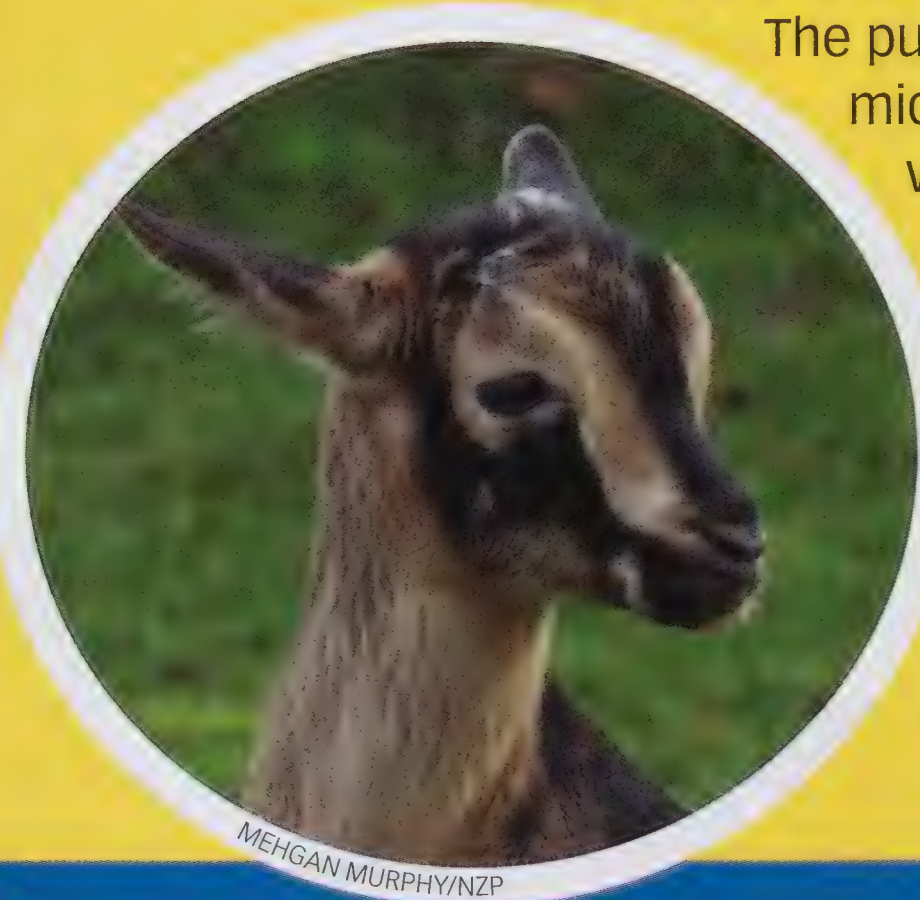
ANN BATDORF/NZP

Fun Fact?

Cows can eat a lot of grass—up to 100 pounds every day—but they don’t actually bite it. Instead, they curl their tongue around a bunch and pull it into their mouth.

STAR PUPIL

The pupil in your eye—the black part in the middle that lets in light—is round. Same with tigers, lions, dogs, and many other predators. But the pupil in a goat’s eye is rectangular, like those in many prey animals. And goats’ eyes rotate. Whether their head is upright or they’re face-down munching on some grass, the pupil stays horizontal. One theory is that this kind of eye shape gives goats a clear view of any threats that may be coming, giving them a chance to get away.



MEHGAN MURPHY/NZP

The Zoo has a cow named Rose and four goats. Two are Nigerian dwarf goats (Fiesta and Fedora), and the other two are San Clemente Island goats (Mortimer and Marla, a brother-and-sister pair). Come to the Kids’ Farm and say hi to all of them!



A photograph of a brown miniature donkey standing in front of a wooden fence. The donkey has large, upright ears and is wearing a dark collar. The background shows some dry leaves and a wooden fence.

CREATURE FEATURE

About as tall as a
large dog, miniature
donkeys are big fun.

WHO
ARE YOU
CALLING
“small”?

BY SARAH BELLINGER

Sometimes, a small animal is just a specially bred version of the larger original (like toy poodles). But miniature donkeys are a different type from full-size donkeys—they've always been small. They're also amazingly social!

Small is BEAUTIFUL Miniature donkeys are less than three feet tall (measured to the top of their backs, not their heads), and they weigh 200 to 450 pounds. Full-size donkeys are about a foot taller and a few hundred pounds heavier. Babies only weigh about 15 pounds when they're born. That's about twice the weight of an average human baby.

OLD Friends They were first domesticated—meaning they got used to being around humans—about 6,000 years ago. Today, many people keep miniature donkeys as pets. They develop close bonds with their owners and other donkeys. Because they're very affectionate and calm, they're used as companions for nervous, injured, or recovering animals. Do you think a miniature donkey would make a good pet?

Easy EATERS How would you like to eat grass for the rest of your life? Miniature donkeys love it. They are grazing herbivores, which means they go around eating plants like grass, hay, and shrubs.

As long as they have good quality hay and clean water, miniature donkeys are happy!

HEE-Haw!

Miniature donkeys communicate with each other—and with people—by making a noise called braying. You might know it as a “hee-haw.” Each bray sounds a little different, but they are all very loud and can be threatening to other animals if they need to be. Miniature donkeys scare off predators with their bray.

Good THINKING!

Most animals have what is called a “flight or fight” response—even you! When something scary happens, your body gets ready to either fight it or run from it. Unlike most animals, miniature donkeys don't do this. Instead, they freeze when there is danger so they don't accidentally injure themselves.

At the ZOO Come down to the Kids' Farm to see the Zoo's four male miniature donkeys. George, Pat, Flash, and Giuseppe would all love to meet you!

YOUR TURN

Field Trip to the Farm

Come visit the Kids' Farm to see these and other amazing animals in person! Take a photo or draw a picture of the animal you like best. Then share it on social media at @FONZNationalZoo or email it to us at zoogoer@si.edu.



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FONZ Children's Classes Learning is WILD at the National Zoo!

FONZ classes use hands-on activities, crafts, and the Zoo's animal collection to help your child learn about environmental conservation and life science while strengthening important developmental and social skills. Whether you prefer a regular, weekly experience with your child or a one-time event for the family, you are sure to find a class to suit the needs of your young animal lover. Classes for ages 2-14 are now available.

Classes do not include behind-the-scenes visits or direct contact with the animals, but do use pelts, bones, feathers, and other touchable artifacts.

Pre-registration is required for all children's classes. See detailed descriptions and register at fonz.org/classes.



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FONZ EDUCATION DEPARTMENT



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For prices and
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NATURE CUBS CLASSES

Nature Cubs preschool classes meet once a week for five weeks and help children build their knowledge of animals and the natural world while strengthening important academic, developmental, and social skills.

Saturday morning session now available!

NATURE CUBS SERIES

Five-class series

\$150 (FONZ members); \$188 (non-members)

Who's New at the National Zoo

Learn about some of the Zoo's newest arrivals and how zookeepers care for them. *(This class does not repeat content from the 2016 "Who's New" class.)*

Ages 2-3:

Sept. 18 – Oct. 21
Sessions available
each weekday,
10-11:30,
or Saturdays, 9-10:30

Ages 3-5:

Sept. 18 – Oct. 19
Mondays or Tuesdays
10-11:30

Animals Around the World

Travel the world learning about our animal friends. From the pandas of Asia to the lemurs of Africa, there is so much to see!

Ages 3-5:

Nov. 6 – Dec. 12
Mondays or Tuesdays
10-11:30

Feasts with the Beasts

Be our guest and learn about some of our animals' favorite foods while satisfying your appetite for discovery.

Ages 2-3

Nov. 6 – Dec. 16
(Sessions available Monday-Saturday 10-11:30)

(No classes the week of Thanksgiving)

WEEKEND/SINGLE-SESSION CLASSES

Weekend family programs are single classes designed for children and adults to enjoy together. Interactive stations and a hands-on discussion get you ready to visit the animals of the day!

See fonz.org/classes for specific information about ages and dates.

WEEKEND CLASSES

\$28 per child (FONZ members); \$35 per child (non-members)

AGES 2-3:

Breakfast with the Beasts

Who needs a teddy bear picnic when you have the real thing right here? We'll learn about the favorite foods of each of our featured animals, then head out into the park to join them for snacktime!

Snacks with the Sea Lions

Sept. 10, 16, or 17
9-10:30

Breakfast with the Bears

Sept. 24 or Oct. 1
9-10:30

Curious George Goes to the Zoo

Put on your yellow hat! We're learning about some of our favorite curious little monkeys.

Oct. 22 or 29
9-10:30

Head, Shoulders, Knees, and Tails

Animals have some body parts that are just like ours and others that are really different! Let's put our heads together to learn about them!

Nov. 4 or 5
10-11:30

Who's In the Egg

It's a surprise! Many animals hatch from eggs. Which animal will be in yours?

Nov. 12
10-11:30

Spots and Stripes

In the animal world, patterns aren't just pretty, they're pretty important! Learn how spots and stripes help animals survive.

Nov. 19
10-11:30



FONZ EDUCATION DEPARTMENT

AGES 4-6:

Wild Kratts

Get ready for a special Zoo mission—learning about animals with real creature power technology!

Oct. 8 or 15
9-10:30



FONZ EDUCATION DEPARTMENT

HOMESCHOOL CLASS SERIES

(ages 5-14)

Homeschool Classes at the National Zoo investigate a new theme each academic year. Each 2017-2018 class series will be a detailed exploration of a major global biome and the animals that make it their home. Students may register for individual series or for the entire curriculum. Hands-on science experiments, inquiry-based learning, and Zoo Walks led by our expert teachers bring these concepts to life and address Next Generation Science Standards.

Savanna Sleuths

Calling all Zoo detectives! Grab your binoculars and join us as we build our knowledge of scientific tools and methods by exploring the animals of the grasslands. This class will strengthen student familiarity with essential science equipment and basic wildlife forensic analysis.

Sept. 18 - Oct. 26

Ages 5-8: Mondays,
10:30 – 12:30

Ages 7-11: Thursdays, 10 – 12

Backyard Naturalists

Autumn is a wild time in the deciduous forests that surround our region! We'll learn about the strategies that Master Naturalists use to explore our local ecosystem and build backyard naturalist kits as we dig deep into our backyard biome.

Nov. 6 - Dec. 14

Ages 5-8: Mondays,
10:30 – 12:30

Ages 7-11: Thursdays, 10 – 12
(No classes the week of Thanksgiving)

NEW! Zoo 101: Homeschool Class Series for kids ages 11-14

Zoo 101 is a project-based class that explores major topics in the inner workings of a zoo. Each session will explore a different core topic in zoo management and is appropriate for students ages 11 to 14, or those students who have completed three full years of FONZ homeschool programs.

Collection Planning

Students will explore how zoo professionals design and manage their animal "collections." What is the role of a 21st century zoo, and how do collections of species support that? How do zoos determine which animals will be in their collections, and what steps do they take to make sure that they meet the physical and social needs of any new species they bring into their collections?

Sept. 21-Dec.14

Thursdays, 1-3

\$300 (FONZ members)

\$375 (non-members)

FONZ WINTER CAMP

You don't need to hibernate this winter—join the National Zoo's cool critters for **Snow Safari Day Camp!** Snow Safari campers will explore the lives, habitats, and conservation of animals around the world during this four-day program.

Snow Safari Day Camp runs Dec. 26-29 (Tuesday through Friday), 9 am to 3 pm. Before- and after-camp care is offered on a limited basis.

Snow Safari Day Camp invites kids in grades K-5 to explore the lives and conservation of animals around the world with hands-on activities, craft projects, science experiments, and guided walks through the Zoo. All camp sessions are grouped by grade level. Campers do not have direct contact with animals or assist with animal care.

\$320 (FONZ members)

\$400 (non-members)

Priority registration for FONZ members at or above the Premier+ level begins October 31 at 10 a.m.

Registration for all FONZ members begins November 7 at 10 a.m.

Registration for non-members begins November 14 at 10 a.m.

Learn more and register online: nationalzoo.si.edu/education/camps/winter



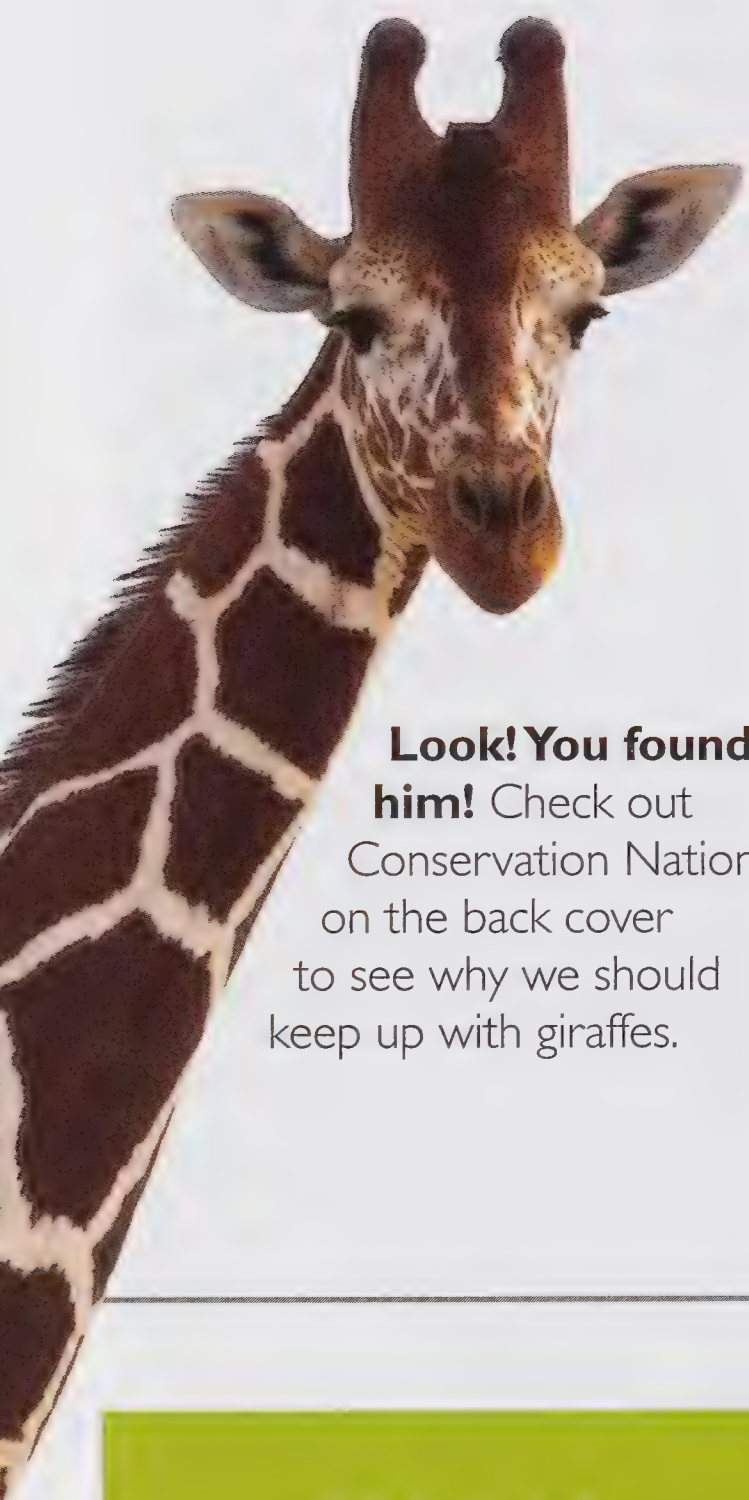
If this giraffe wore a tracker, we would have known he was here!
See the back cover to find out how you can help!

Can't get enough of the Zoo? Try one of our Single Day Camps!

Make the most of your child's day off from school by exploring the "living classroom" at the National Zoo! Open to kids in grades K-6. (Before-camp and after-camp care are not available for this program.)

Oct. 9, Oct. 27, Jan. 19, Feb. 16, and April 16, 9 a.m. – 4 p.m.

Learn more, explore the camp, and register at: nationalzoo.si.edu/education/camps/single-day



Look! You found him! Check out Conservation Nation on the back cover to see why we should keep up with giraffes.

TALK TO US! 2017 Reader Survey

My colleagues and I strive constantly to improve *Smithsonian Zoogoer*, and we could use your help. **Please visit fonz.org/magsurvey and complete our short survey.**

Your answers will guide us in refining the magazine to best meet readers' needs and interests. So please give us your thoughts!

—Peter Winkler, Editor

fonz.org/magsurvey



Brew at the Zoo: We Thank You!

FONZ thanks everyone who contributed to—and attended—Brew at the Zoo this summer.

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Brewing
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Brewing

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O'Connor
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Old Ox Brewery
Oliver Brewing
Co.
Oskar Blues
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Brewing
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Company
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Company
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Brewing
Company

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Brewing Co.
Starr Hill
Brewery
Stella Artois
SweetWater
Brewing
Terrapin Beer
Company
The Brewer's Art
Three Notch'd
Brewing Co.
Troegs
Independent
Brewing
Company
Two Roads
Brewing
Company
Vanish
Farmwoods
Brewery
Waredaca
Brewing
Company



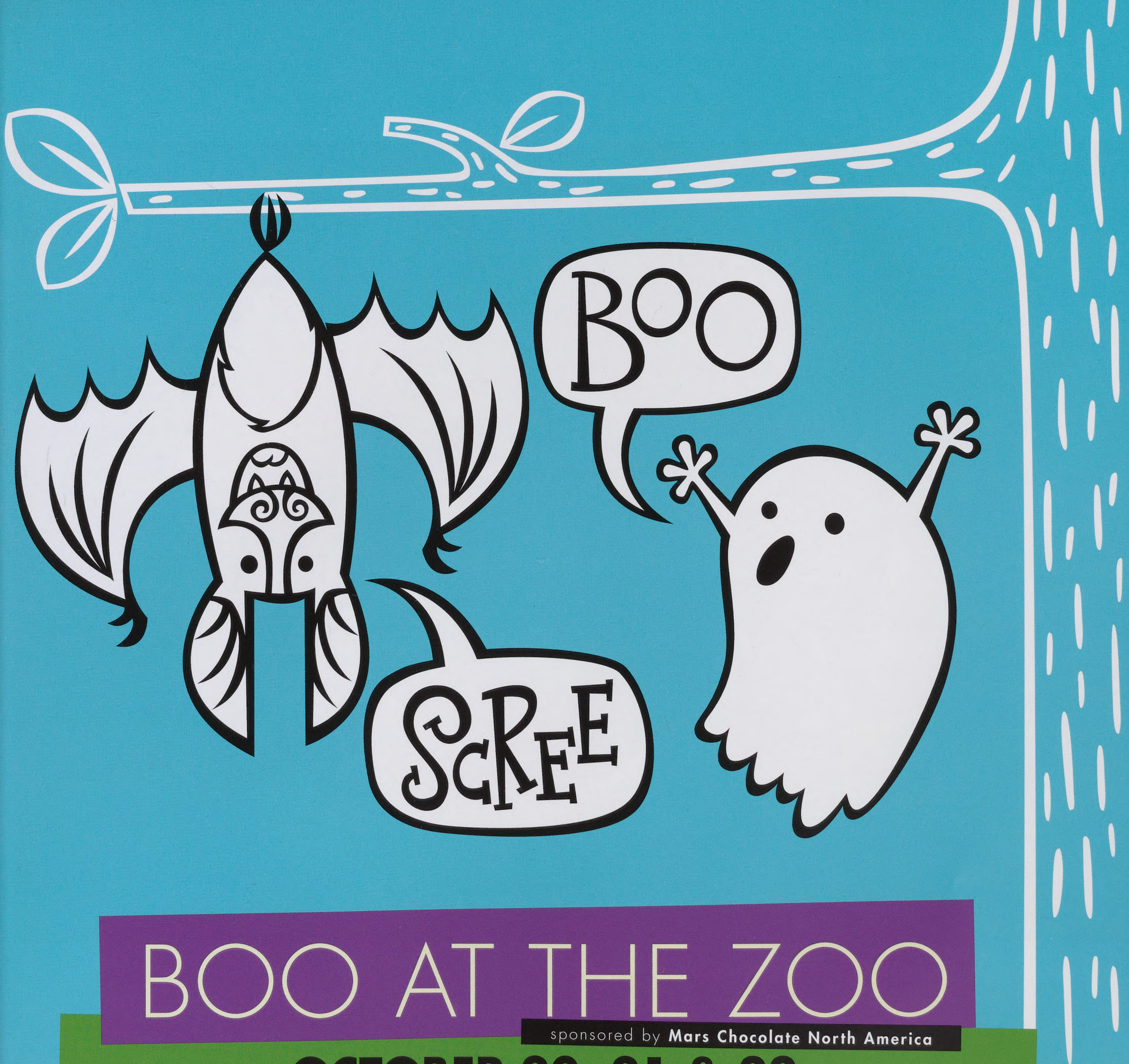
FOOD

Appioo Appioo
African Bar & Grill
Barrel
Blackfinn
Ameripub
BRABO Tasting
Room

Brookland's
Finest Bar &
Kitchen
Brookland Pint
Choolaah

City Tap Penn
Quarter / City
Tap Dupont
Dino's Grotto
Duke's Counter
Hill Country BBQ
Nando's Peri-Peri

Pinstripes
Roofers Union
Sixth Engine
/ Town Hall
Tonic at Quigley's
Vice Cream



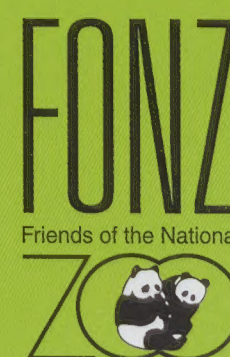
BOO AT THE ZOO

sponsored by Mars Chocolate North America

OCTOBER 20, 21 & 22

JOIN US for Washington DC's favorite not-so-spooky Halloween haunt, Boo at the Zoo. With more than 40 treat stations, animal demonstrations, jugglers, and magicians, this frightfully fun evening is a treat for the whole family. Best of all, it's a great way to help us support the Smithsonian's National Zoo's mission to save species. As a member, you can buy tickets first beginning September 7. \$20 FONZ members; \$30 non-members. **FONZ.ORG/BOO**

LEAD SPONSOR: MARS CHOCOLATE NORTH AMERICA. Additional sponsors: BIG 100.3, Big Bus Tours, The Coca-Cola Company, Comcast, FedEx, GEICO, HOT 99.5, HBP Printing, 97.1 WASH-FM, Washington Parent, The Washington Post, and 98.7 WMZQ.





STAN BYSSHE

Pretty in Pink

The Bird House may be closed for renovations, but many birds are still on display at Amazonia,

like this roseate spoonbill photographed by long-time FONZ volunteer **Stan Byshe**.

Because he helps out at Amazonia each week, Byshe gets to know the habits of the animals, and how to best capture eye-thrilling images. "You can't shoot upward in the building," Byshe says. "The glass ceiling gives you a lot of light but also tough contrasts. When I saw the spoonbill bathing, I waited for it to take off to its perch in the canopy. That gave me the nice solid green background. And I had the camera set at a fast shutter speed to catch the action."

Technical Notes

CAMERA: NIKON D3S;
LENS: NIKON 70-200 MM 2.8 AT 100 MM;
ISO: 2500; **EXPOSURE:** 1/1250 SEC AT F/5.0

Share Your Photos!

Smithsonian Zoogoer welcomes FONZ members' submissions of photos taken at the Zoo. Please send photos to Zoogoer@si.edu or post to @FONZNationalZoo on Twitter, Instagram, or Facebook. Your photo may be featured on the Zoo View page.

Join the Club! Membership in the FONZ Photo Club is open to photographers of all skill levels. The group meets monthly to hear guest speakers and to share and discuss members' work. Learn more at fonz.org/photoclub.



Night of the Living Zoo

A PARTY TO SAVE SPECIES

Join us on October 27 for an adults-only Halloween celebration. With live music, craft beer, amazing oddities, and a wicked costume contest, it's a great way to help us support the Smithsonian's National Zoo's mission to save species. As a member, you can buy tickets first beginning on September 14. Missing the fun would be a grave mistake. Sponsored by Groupon.

October 27, 2017 • GET READY, TICKETS SELL FAST! • fonz.org/NOLZ

FRIENDS OF THE NATIONAL ZOO

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CONSERVATION NATION

Find the giraffes

You probably couldn't. You would think the world's tallest land mammal would be easy to track. They're not. And that means less information about their habitat and behavior – which is a dangerous situation for these beautiful, but vulnerable, animals in Kenya. Help Conservation Nation support Smithsonian Conservation Biology Institute scientists study giraffes by donating today to fund the purchase of solar-based GPS trackers. With these innovative trackers the team can identify threats and help ensure giraffe survival. **Donate Today!**

ConservationNation.org/Zoogoer